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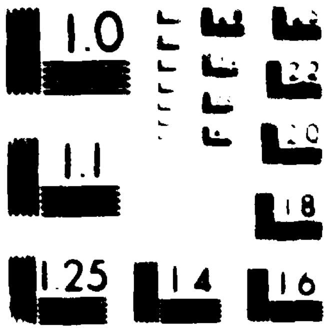
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PARTIALLY EDITED MACHINE TRANSLATION

FTD-ID(RS)T-0844-87 3 September 1987

MICROFICHE NR: FTD-87-C-[illegible]

HIGH-MOLECULAR COMPOUNDS (Selected Articles)

English pages: 21

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We need three things: the incorrect or poor translation, the correct or improved word or phrase, and the foreign page number.

Example:

Translation # FTD-ID(RS)T-0204-86 (Provided by SIT)

Foreign Page # ______________

Incorrect word/phrase: ____

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Recommendation: ____

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Foreign page numbers occur in the English text and may be found anywhere along the left margin of the page as in this example:

In them occurs the state named "night blindness" - hemeralopia, which, according to the current point of view, is a result of damage of the rod-shaped apparatus of the eye.

Page 51.

However, in recent years it has been shown that with the hereditary pigment degenerations in animals the biochemical changes are observed in all celluar elements of the retina.

Remove the sheet with your recommendations from the translation and forward it to:

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U. S. BOARD ON GEOGRAPHIC NAMES TRANSLITERATION SYSTEM

Block	Italic	Transliteration	Block	Italic	Transliteration
	А а	A, a		*Р р*	R, r
	Б б	B, b		*С с*	S, s
	В в	V, v		*Т т*	T, t
	Г г	G, g		*У у*	U, u
	Д д	D, d		*Ф ф*	F, f
	Е е	Ye, ye; E, e*		*Х х*	Kh, kh
	Ж ж	Zh, zh		*Ц ц*	Ts, ts
	З з	Z, z		*Ч ч*	Ch, ch
	И и	I, i		*Ш ш*	Sh, sh
	Й й	Y, y		*Щ щ*	Shch, shch
	К к	K, k		*Ъ ъ*	"
	Л л	L, l		*Ы ы*	Y, y
	М м	M, m		*Ь ь*	'
	Н н	N, n		*Э э*	E, e
	О о	O, o		*Ю ю*	Yu, yu
	П п	P, p		*Я я*	Ya, ya

*ye initially, after vowels, and after ъ, ь; e elsewhere.
When written as ё in Russian, transliterate as yё or ё.

RUSSIAN AND ENGLISH TRIGONOMETRIC FUNCTIONS

Russian	English	Russian	English	Russian	English
sin	sin	sh	sinh	arc sh	$\sinh^{-1}$
cos	cos	ch	cosh	arc ch	$\cosh^{-1}$
tg	tan	th	tanh	arc th	$\tanh^{-1}$
ctg	cot	cth	coth	arc cth	$\coth^{-1}$
sec	sec	sch	sech	arc sch	sech^{-1}
cosec	csc	csch	csch	arc csch	csch^{-1}

Russian	English
rot	curl
lg	log

GRAPHICS DISCLAIMER

All figures, graphics, tables, equations, etc. merged into this translation were extracted from the best quality copy available.

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THE MICRO-TACT OF POLYPHENYLMETHACRYLATE.

E. Yun, L. B. Stroganov, V. A. Agasandyan, A. D. Litmanovich, N. A. Plate.

Polyphenylmethacrylate (PFMA) is very convenient object for studying effect of adjacent links in reaction of hydrolysis of ethers/esters of polymethacrylic acid. Since reactivity of polymethacrylates depends on their micro-tact [1], during the kinetic investigations of hydrolysis it is desirable to study polymeric samples with different micro-tact. In this work by the method NMR was studied the micro-tact of the samples PFMA, synthesized by different methods.

Experimental part.

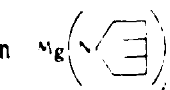
Phenylmethacrylate (FMA) they synthesized from methacrylylchloride and phenol [2]; boiling point 83-84°/4 mm, n_D^{20} 1.51[illegible]

Toluene, hexane, benzene, diethyl ether, dioxane, chloride butyl [3], ethyl bromide [4] purified by usual methods.

Pyrrole dried 24 hrs above CaH_2 and they distilled in current of argon above drier [5]; boiling point of 129-130°, n_D^{20} 1.5085

Piperidine was boiled during 3 hours and they distilled above solid KOH, then 24 hrs above CaH_2, were dried and they accelerated/dispersed in current of argon [5]; boiling point of 104°, n_D^{20} 1.4530

Butyllithium was prepared in hexane from chloride butyl and metallic Li [6]. The concentration of the prepared catalyst was determined by the method of dual titration [7].

Catalysts - dipyrryl magnesium  and dipiperidyl magnesium  synthesized according to reaction $Mg(C_2H_5)_2$ with appropriate amine [5]. Diethylmagnesium was obtained by addition to solution C_2H_5MgBr in ether/ester (0.3 mole/ℓ) of the solution of dioxane in ether/ester (4 mole/ℓ) by three portions with the daily interval between the portions for the purpose of an increase in output/yield $Mg(C_2H_5)_2$ [8]. The solution, which contains $Mg(C_2H_5)_2$, crushed by argon into the flask/bulb. Sulfur ether and dioxane were distilled in the vacuum, the fallen precipitate $Mg(C_2H_5)_2$ was finished to the fixed weight by lyophilic drying. In the two-neck flask/bulb with a capacity of 50 mℓ, thoroughly "annealed" and blown-off by argon, were placed 0.01 moles $Mg(C_2H_5)_2$ and 15 mℓ of absoluted toluene. To the formed suspension during the mixing 0.02 moles of piperidine or pyrrole at room temperature gradually were added. On the stop of the liberation/precipitation of ethane the solution was heated to the boiling point of solvent and was finished reaction to

the end. On cooling of system toluene to the total volume of 20 ml was added in the current of argon.

Benzoyl peroxide after washing by distilled ode was dissolved in chloroform and they deposited by methanol. Recrystallized thus peroxide was dried in the vacuum at room temperature.

Anionic polymerization was conducted in three-necked flask/bulb with capacity of 0.5 ℓ, preliminarily "annealed" in current of argon. In the flask/bulb loaded purified FMA, thoroughly dried above CaH_2 and distilled in the vacuum directly before experiment, and toluene, distilled in the vacuum above the crystalline ethyl lithium. On the achievement of the temperature of polymerization the appropriate catalyst was introduced in the current of argon. In all cases after 15-20 min. from the solution into the precipitate the polymer settled. After the required for the polymerization time reaction they broke by the addition of methanol. The reprecipitation of polymer was conducted from the benzene either into methanol or into the petroleum ether. Samples were finished to the fixed weight in the vacuum at 50°.

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Radical polymerization of FMA conducted in ampules at 60° in medium of benzene; initiator - benzoyl peroxide.

Hydrolysis of samples PFMA, obtained under varied conditions, was

conducted in concentrated sulfuric acid. In the ampule, blown-off by argon, were loaded by 0.3-0.5 g of polymer, 6 ml H_2SO_4 and 3 drops H_2O. After 24 hours they poured out homogeneous mixture into the ice water. Precipitate they centrifuged and they dried by lyophilic drying. The obtained polymethacrylic acid they converted into the polymethyl methacrylate (PMMA) by methylation in the medium of benzene by diazomethane [9]. The depth of hydrolysis and the completeness of methylation were controlled with the aid of IR spectroscopy [10].

Results and their discussion.

NMR spectra were removed/taken at 175° and frequency of 60 MHz on instrument C-60HL of firm JEOL. For the measurements 10% solutions of polymers in the o-dichlorobenzene, which contains 1% of octamethylcyclotetrasiloxane (internal standard), were used. The spectra of samples PFMA (Fig. 1) qualitatively coincided with the spectra of samples PFMA, described earlier [11]. Due to the large spectral line width it was impossible to carry out the quantitative analysis of the micro-tact of the obtained samples; therefore conclusions about micro-tact of PFMA were made on the basis of the study of the NMR spectra of the corresponding samples PMMA, obtained as a result of hydrolysis and methylation (Fig. 2).

Fig. 1.

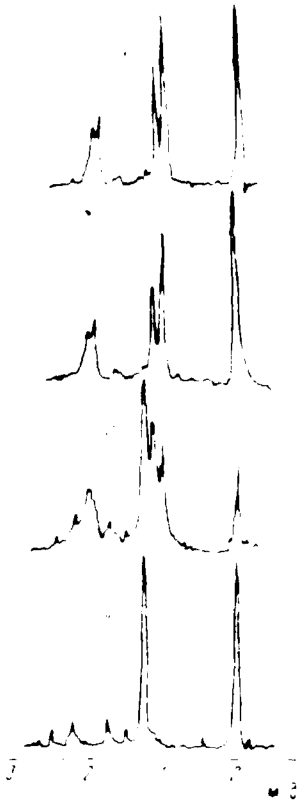

Fig. 2.

Fig. 1. NMR spectra of samples PFMA, obtained with benzoyl peroxide (1), $Mg(-N\langle\ \rangle)_2$ (2), $Mg(N\langle\ \rangle)_2$ (3) and butyllithium (4).

Key: (1) ppm.

Fig. 2. NMR spectra of samples of polymethyl methacrylate, obtained from appropriate samples PFMA. Designations are the same as in Fig. 1.

Key: (1). ppm

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For quantitative analysis of micro-tact they approximated line of

resonance absorption of α-methyl protons F(x) (Fig. 3) by sum of three standardized/normalized Lorentz lines according to equation (1)

$$F(x)=\frac{\tilde{I}}{1-\left(\frac{x-x_I}{\delta}\right)^2}+\frac{\tilde{H}}{1-\left(\frac{x-x_H}{\delta}\right)^2}+\frac{\tilde{S}}{1-\left(\frac{x-x_S}{\delta}\right)^2} \qquad (1)$$

Here x_I, x_H and x_S - chemical shifts of the α-methyl protons of central links iso-, the hetero- and syndiotactic triads with respect [12] [1]; $\tilde{I}$, $\tilde{H}$ and $\tilde{S}$ - values, proportional to the concentrations of such links, and δ - spectral line half-width on the half-height (it is considered identical for all three lines).

FOOTNOTE [1]. With the strong overlap of spectral lines maximums F(x) cannot coincide with the actual values of chemical shifts x_I, x_H, x_S. However, during permission/resolution reached in this work the distances between the abscissas of maximums F(x) in the units of chemical shifts in accuracy coincided with differences in the literary values of chemical shifts; x_I-x_H and x_I-x_S. Therefore as x_I, x_H and x_S were used chemical shifts of the corresponding maximums F(x). ENDFOOTNOTE.

$\tilde{I}$, $\tilde{H}$ and $\tilde{S}$ found as follows. In equation (1) substituted the value of x and F(x), that correspond to the coordinates of maximums F(x), and also δ_0 - half-width of lines on the half-height of the more permitted peak. As a result was obtained the system of three linear equations with three unknowns $\tilde{I}$, $\tilde{H}$ and $\tilde{S}$, whose solution gave zero approximation to the content of iso-, hetero- and syndiotriads: $\tilde{I}_0$, $\tilde{H}_0$ and $\tilde{S}_0$.

Substituting these values together with δ_0 into equation (1), were calculated values of F(x) at points of minima x_1 and x_2 (Fig. 3). The comparison of the calculated values $F(x_1)$ and $F(x_2)$ with the experimentally observed values made it possible to make a conclusion about how it is necessary to change δ for the best coordination with the experiment. After the selection of new value $\delta(\delta_1)$ the procedure of calculation was repeated. Process was continued until the effectiveness of iteration sharply decreased. Thus found the standardized/normalized to one values I, H, S and δ (table). Using these values, according to equation (1) there were determined values F(x) (Fig. 3). As can be seen from the figure, the calculated points coincide sufficiently well with the real spectral line.

F.g. 3. Diagramma[illegible] representa[illegible] [illegible] of a-methyl protons explana[illegible] [illegible]

Key: (1). [illegible]

Cond.t.ons of po.ymer.za[illegible] of FMA [illegible]

polymers.

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Пере[illegible] ...ен...	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Диизо[illegible] магний (1)	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Диизопр[illegible] ний (3)	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Бути[illegible] (2)	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Key: (1). Cata.ys[illegible]. (2). So.vent. [illegible] [illegible]

(4). monomer. (5). catalyst. (6). Tempera[illegible]re [illegible]

hours. (8). Conversion. (9). [illegible] [illegible]

(11). Benzoyl perox.de. (12). Benzene. (13). [illegible]

magnesium [illegible].

FOOTNOTE [illegible]. Cond.t.ons of po.ymer.za[illegible] as [illegible]

ENDFOOTNOTE.

(4) Toluene. (5) Dipyrryl magnesium (6) Butyllithium

FOOTNOTE Conditions of polymerization as in [2]. ENDFOOTNOTE.

Table 2

At ... catalyst ... and with benzoyl peroxide at 60° are formed virtually polymers identical with respect to micro-tact predominantly syndiotactic structure (table). In PFMA, obtained on catalyst ... at ... the content of isotactic triads from 4 to ...% due to a reduction in the content of syndio- and heterotriads sharply is raised. On butyllithium at -50° highly-isotactic PFMA ... is triads is obtained.

Conclusions.

By method NMR is studied ... of samples of ... PFMA synthesized by different methods. It is established that on the catalyst of dipiperidyl magnesium and with ... of polymerization are formed the polymers of predominantly syndiotactic structure ... the catalyst of dipyrryl magnesium is obtained ... polymer with somewhat increased content of isotriads ...% ... butyllithium highly isotactic PFMA which contains 90% ... is triads is obtained.

Institute of petrochemical synthesis im. A. V. Topchiyev of the AS USSR.

It was received by the editorial staff 11 SEPT. 1970.

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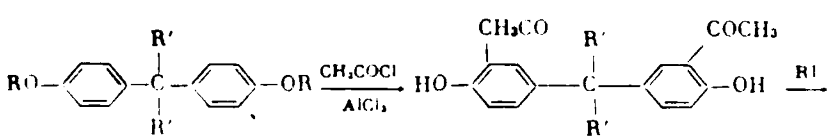
SOLUBLE POLY-ACETYLENE OLIGOMERS WITH DIELECTRIC PROPERTIES.

I. Ye. Sokolov, A. S. Zanina, I. L. Kotlyarevskiy.

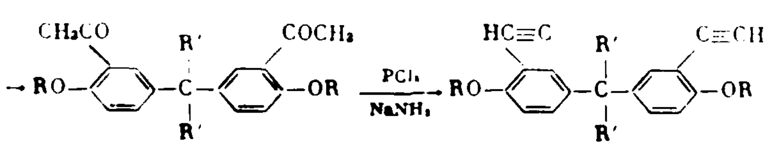
Earlier [1-3] we showed that polyarylene-polyacetylene oligomers become soluble with the introduction into link of oligomer of branched alkane bridge between phenyl nuclei [1-3].

Purpose of this work - synthesis of diacetylene monomers, in which with preservation of alkane bridge between phenyl nuclei are introduced alkoxyl groups into aromatic nucleus, obtaining of soluble oligomers on their basis and investigation of properties of these oligomers.

Synthesis of monomers was realized according to following diagram:



$R = C_2H_5$, $R' = CH_3$ (I); $R = C_2H_5$, $R' = C_2H_5$ (II)
$R' = CH_3$ (III); $R' = C_2H_5$ (IV)



$R = C_2H_5,\ R' = CH_3\ (V);\quad R = н\text{-}C_3H_7,\ R' = CH_3\ (VI)$[1]

$R = CH_3,\ R' = C_2H_5\ (VII);\quad R = C_2H_5,\ R' = C_2H_5\ (VIII)$

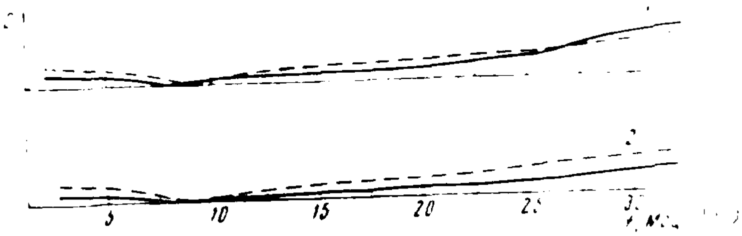
$R = н\text{-}C_3H_7,\ R' = C_2H_5\ (IX);\quad R = C_2H_5,\ R' = CH_3\ (X)$

$R = н\text{-}C_3H_7,\ R' = CH_3\ (XI);\quad R = CH_3,\ R' = C_2H_5\ (XII)$

$R = C_2H_5,\ R' = C_2H_5\ (XIII),\quad R = н\text{-}C_3H_7,\ R' = C_2H_5\ (XIV)$

Key: (1). n.

Acetylation with I and II acetylchloride in presence of aluminum chloride in dichloroethane leads to obtaining of diacetyl derivatives of diphenylol propane and diphenylolpentane (III and IV) with output/yield 65.3 and 72.0%. Obtaining these products attests to the fact that in this reaction together with the acetylation the reaction of dealkylation [4] occurs.



Dependence of the capacities of samples XIII (1) and XV (2) on the frequency; broken line - capacity of instrument.
Key: (1) MHz.

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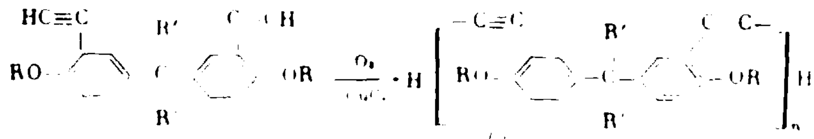
Alkylation III and IV was conducted by alkyl iodides in medium of corresponding alcohol and in presence KOH. The outputs/yields of alkyl ethers/esters III and IV lie/rest within limits of 60-85%. Transition to the diethynyl derivatives of dialkyl ethers/esters of diphenylol propane and diphenylolpentane (V-IX) was realized with the aid of the reaction of chlorination and subsequent dehydrochlorination by sodium amide in liquid ammonia. The outputs/yields of diacetylenes (X-XIV) lie/rest within wider limits of -20-60%.

For X-XIV is characteristic presence in IR-spectrum of intensive absorption band in region 3300 cm^{-1}, which testifies about presence of unsubstituted acetylene hydrogen.

Oligomers were obtained by reaction of oxidative polycondensation with quantitative output/yield during oxidation X-XIV in pyridine in presence CuCl in atmosphere of oxygen according to diagram



$R = C_2H_5$, $R' = CH_3$ (XV); $R = n\text{-}C_3H_7$, $R' = CH_3$ (XVI); $R = CH_3$, $R' = C_2H_5$ (XVII); $R = C_2H_5$, $R' = C_2H_5$ (XVIII); $R = n\text{-}C_3H_7$, $R' = C_2H_5$ (XIX)

Key: n.

Oligomers XV-XIX are weakly-painted powders, soluble in series/number of organic solvents. The solubility of oligomers is increased with an increase in radicals R and R'. Thus, for example, if oligomer XV is soluble only in cyclohexanone and chloroform during the heating, then oligomer XIX is dissolved in the benzene, cyclohexanone, carbon tetrachloride, chloroform, dichloroethane at room temperature. At the same time in series/number XV-XIX the melting point of oligomers is lowered. If oligomer XV is softened at 250-260°, then oligomer XIX is melted in limits of 150-180°. The melting point of oligomers depends also on their molecular weight, which, in turn, can be varied, changing the conditions of reacting the oxidative polycondensation (Table 1).

Specially conducted investigation based on example of obtaining oligomer XV showed that while conducting of oxidative polycondensation in pyridine with catalytic quantities CuCl degree of polycondensation n XV was equal to 5, during application of threefold excess of pyridine $n = 2$, addition of tetramethylenediamine leads to XV with $n = 10$.

Table 1. Dependence of molecular weight of oligomer XV on quantity of pyridine [1].

FOOTNOTE [1]. Quantity of diacetylene X - 500, CuCl - 50 mg. ENDFOOTNOTE.

Количество пиридина, мл (1)	Мол. вес (2)	Степень поликонденсации (3)	Т. пл., °С (4)
50	1630	5	170—180
150 (5)	700	2	70—80
50 + 0,3 г TM[illegible]	3317	10	190—205

Key: (1). Quantity of pyridine, ml. (2). Mol. weight. (3). Degree of polycondensation. (4). Melting point. (5). g.

FOOTNOTE [2]. Melting point of monomer X 91-93°. ENDFOOTNOTE.

Table 2. Dielectric properties XV and XVIII.

Олигомеры (1)	ε	tg δ	$U_{пр}$, в/см (2)	f, кгц (3)
XV	3,7	0,0070	$2{,}0\cdot 10^6$	25
XVIII	3,6	0,0065	$2{,}0\cdot 10^6$	20

Note. ε - dielectric constant, tgδ - the loss tangent, $U_{пр}$ - breakdown voltage, V/cm, f - current frequency, kHz. Numerical values ε, tgδ, $U_{пр}$, f are neutralized/averaged on fifty samples.

Key: (1). Oligomers. (2). V/cm. (3). kHz.

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During application of copper acetate in pyridine in presence of small quantity of methanol molecular weight XV is equal to 1697, in this case $n=5$ and melting point of 175-187°.

Solutions of oligomers XV and XVIII easily will be brought in on surface of glass and metals and after solvent elimination do not settle into precipitate, but are formed clear sheets. During heating of films up to 200° for 1 hour their thermal stereopolymerization due to the break of triple bonds occurs, and films become nonmelting and undissolved. Films from oligomers XV and XVIII maintain/withstand heating up to 250°.

Adhesion of film to aluminum for XV, thoroughly heated 1 hour at 200°, is 160-200 kg/cm^2. The dielectric properties XV and XVIII are given in Table 2.

Retention/maintaining stability of capacity at high frequencies (figure) is very interesting property of these films. As can be seen from the figure, is not observed changes of the capacity from the frequency within the limits from 20 kHz to 30 MHz.

Experimental part.

Acetylation of 2,2-bis(p'-ethoxy phenyl)propane (I). To the solution 20 g of I in 85 ml dry dichloroethane and 35 g CH_3COCl during 0-2° and mixing they added in 1.5 hours of 61 g $AlCl_3$. Reaction

mixture mixed 3 hours at 50°, they cooled and decomposed/expanded, pouring out into mixture HCl with ice. They extracted by benzene, the organic layer was washed by water, dried above $CaCl_2$, after solvent elimination obtained 15 g of diketone III, output/yield 63.5%, melting point of 141-142° (CH_3OH: benzene =3:1).

It is found, %: C 72.87; H 6.45. $C_{19}H_{20}O_4$. It is calculated, %: C 73.06; H 6.45. Analogously from 20 g II was obtained 15.2 g of diketone IV; output/yield 72.0%, melting point of 153-154° (CH_3OH: benzene =3:1).

It is found, %: C 74.05; H 6.97. $C_{21}H_{24}O_4$. It is calculated, %: C 74.09; H 7.11.

Alkylation of 2,2-bis-(3'-acetyl-4'-hydroxyphenyl)propane. To the mixture 12 g of diketone III and 4.3 g KOH in 200 ml C_2H_5OH they added in 15 min. 24 g C_2H_5I, mixed at 70° during 10 hours, they cooled, extracted by ether/ester, the ether extract they washed in water and dried $CaCl_2$. After the removal of ether/ester obtained 7.0 g V, output/yield 63.5%, melting point of 78.5-7.95° (from alcohol).

It is found, %: C 74.88; H 7.55. $C_{22}H_{28}O_4$. It is calculated, %: C 74.97; H 7.66. Under the analogous conditions dialkoxydiketones XI-IX (Table 3) were obtained.

Table 3. Output/yield and the constant of dialkoxydiketones and diacetylenes.

Мономер (1)	Выход, % (2)	Т пл., °C (3)	(4) Найдено % C	H	Брутто-формула (5)	Вычислено, % (6) C	H
Диалкоксидикетоны (7)							
IV[1]	74,2	41–42	75,11	8,21	$C_{25}H_{32}O_4$	75,72	8,13
VII[2]	83,7	86–87	74,80	7,53	$C_{23}H_{28}O_4$	74,97	7,66
VIII	85,0	114,5–116	75,41	8,21	$C_{25}H_{32}O_4$	75,7	8,13
IX	60,3	75–76	76,23	8,69	$C_{27}H_{36}O_4$	76,38	8,55
Диацетилены (8)							
XI[3]	60,0	—	83.03	7,91	$C_{25}H_{28}O_4$	83.29	7,83
XII	31,4	142	82,98	7,30	$C_{23}H_{24}O_2$	83.10	7,28
XIII	19,25	122,5–123	83,49	7,99	$C_{25}H_{28}O_2$	83,29	7,83
XIV	27,6	85–86	83,54	8,56	$C_{27}H_{32}O_2$	83,46	8,30

Key: (1). Monomer. (2). Output/yield. (3). Melting point. (4). It is found. (5). Sum formula. (6). It is calculated. (7). Dialkoxydiketones. (8). Diacetylenes.

FOOTNOTE [1]. Boiling point at 275-277/2 mm.

[2]. VII was obtained upon alkylation by IV dimethylsulfate in water.

[3]. XI - liquid is decomposed/expanded with distillation, it is purified chromatographically. ENDFOOTNOTE.

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Obtaining 2,2-bis-(3'-ethynyl-4'-ethoxyphenyl)propane. Chlorination of 2,2-bis-(3'-acetyl-4'-ethoxyphenyl)propane. 12.4 g of diketone of the III in 100 g dry benzene heated 1 hour with 17 g PCl_5 at 70°. They decomposed/expanded reaction mixture, pouring out to ice, extracted by ether/ester. They washed organic layer in water,

dried above $CaCl_2$ and introduced into the reaction of dehydrochlorination, without separating/liberating obtained chlorides.

Dehydrochlorination. To amide of sodium (of 20 g Na in 500 ml NH_3) was added the ether/ester-benzene solution of the mixture of chlorides and were mixed 4 hours. They decomposed/expanded, adding 40 g NH_4Cl, 200 ethers/esters even 200 ml of water. They washed organic layer in water, dried above $CaCl_2$. Obtained 4.9 g of diacetylene X, output/yield 45.3% (to diketone V); melting point of 91-93° (from alcohol).

It is found, %: C 93.35; H 6.68. $C_{23}H_{24}O_2$. It is calculated, %: C 93.40; H 6.60. Diacetylenes XI-XIV were obtained in a similar manner (Table 3).

Oxidative polycondensation of 2,2-bis-(3'-ethynyl-4'-ethoxyphenyl)propane. They shook the solution 0.5 g of diacetylene X in 50 mm dry pyridine in the weft to the stop of the absorption of oxygen in the presence 0.05 g CuCl, then they poured out reaction mixture into the water, the fallen precipitate filtered out, washed by water and HCl (1:9), by alcohol and by ether/ester. Was obtained oligomer XV; output/yield quantitat..., melting point of 170-180°, molecular weight 1630.

It is found, %: C 83.74; H 6.96. $C_{23}H_{22}O_2$. It is calculated, %: C 83.60; H 6.71. Oligomers XVI-XIX are obtained employing the

same procedure, their characteristic is given in Table 4, outputs/yields are quantitative.

Conclusions.

Method of synthesis of soluble poly-acetylene oligomers, which possess film-forming and dielectric properties, is developed.

Table 4. Characteristic of oligomers XVI-XIX.

Олиго-меры (1)	Т. пл., °С (2)	Мол. вес (3)	(4) Найдено, %		Брутто-формула (5)	(6) Вычислено, %	
			C	H		C	H
XIV	115—130	1450	83.34	7,96	$C_{15}H_{26}O_2$	83.76	7,31
XVII	250—260	2000	83,42	6.78	$C_{12}H_{22}O_2$	83.60	6,7[illegible]
XVIII	168—175	1800	83.29	7,76	$C_{25}H_{26}O_2$	83.76	7,31
XIX	150—180	1950	83,57	8,10	$C_{27}H_{30}O_2$	83.90	7,82

Key: (1). Oligomers. (2). Melting point. (3). Mol. weight. (4). It is found. (5). Sum formula. (6). It is calculated.

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